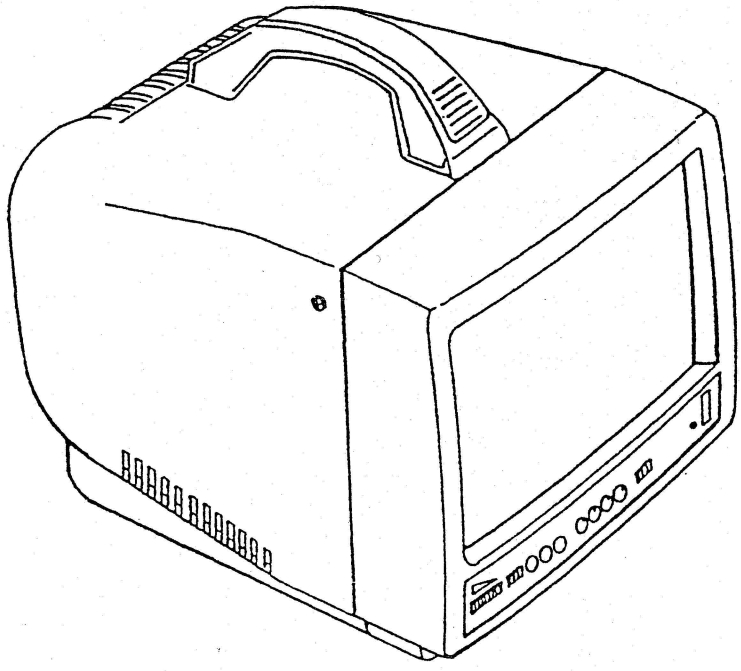
Roadstar®
AUDIO-VIDEO

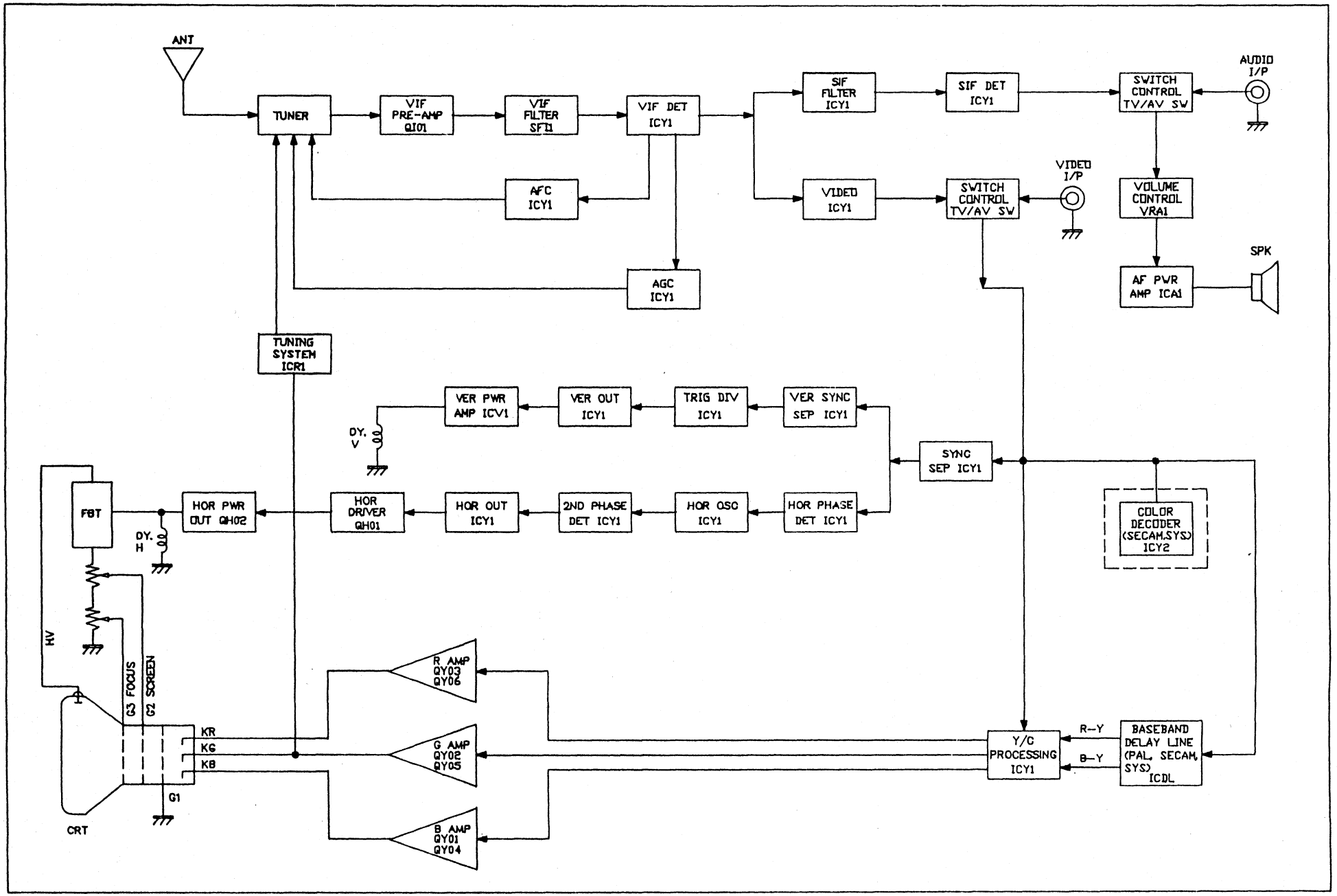
Service Manual



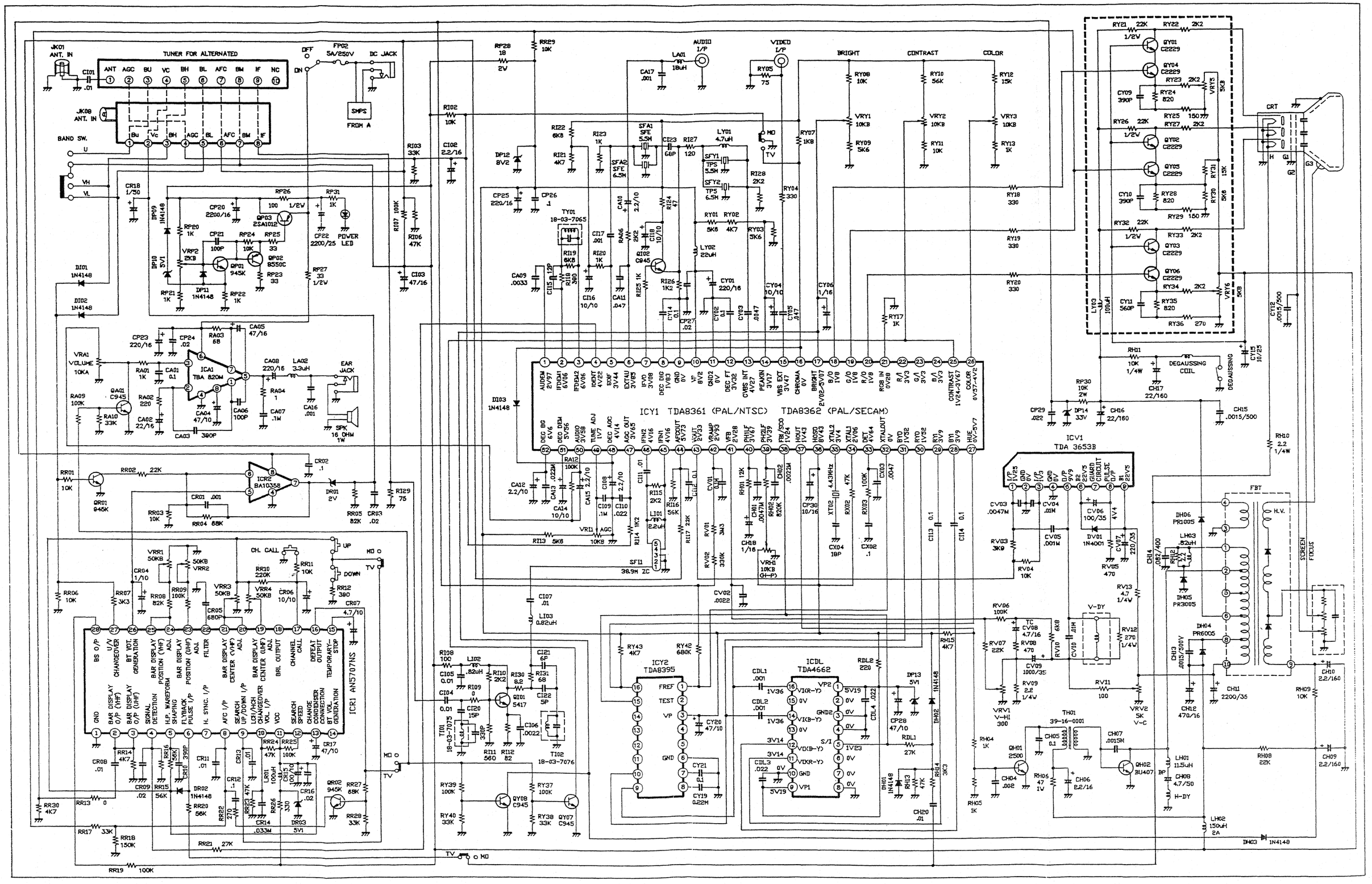
CTV-1002XK

ACTION CTV 418

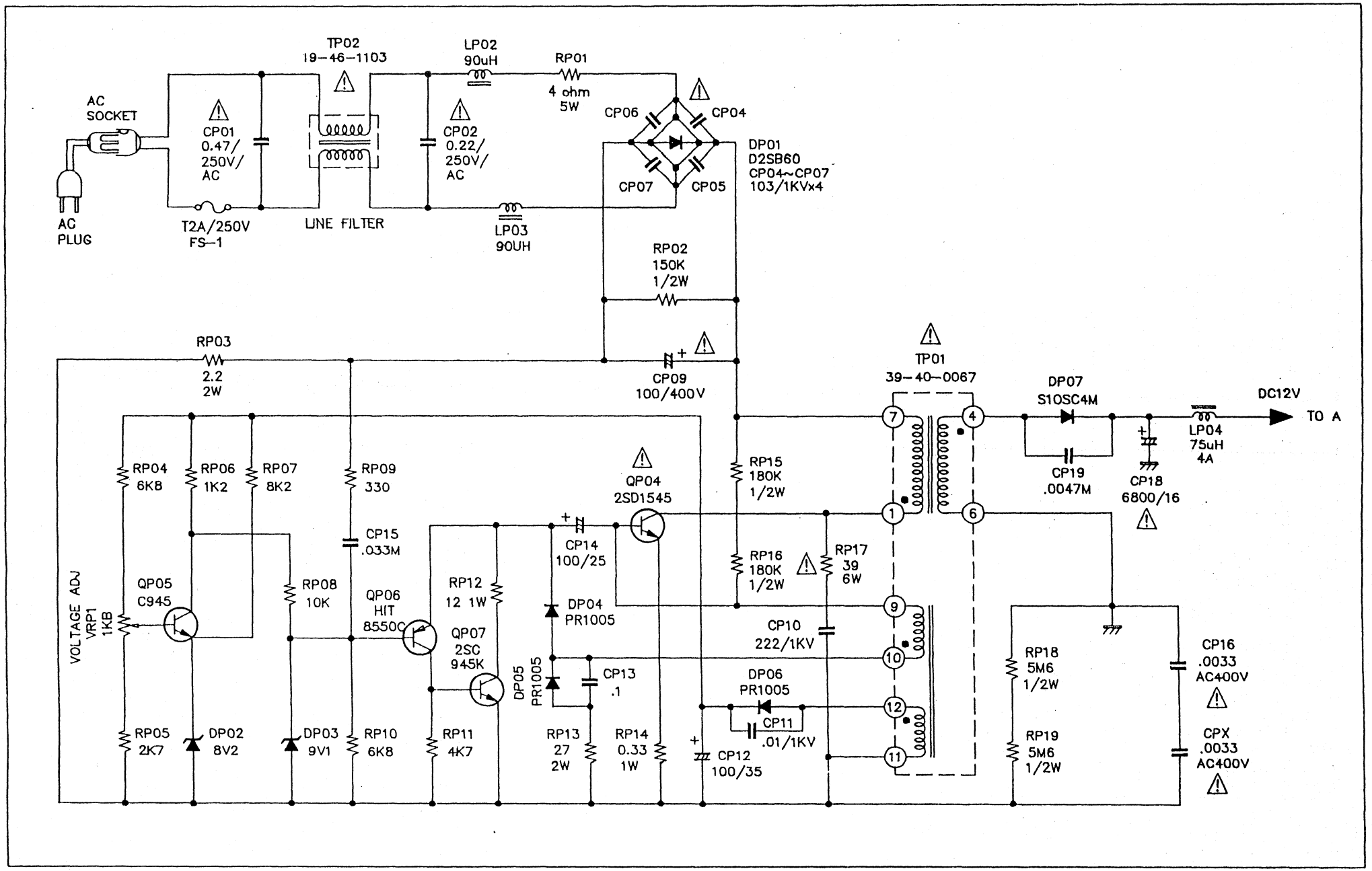
BLOCK DIAGRAM



SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM



ELECTRICAL SPECIFICATION

SUPPLY VOLTAGE : AC 230V DC 13.5V LOAD : 16 ohm TESTER:
GERERAL INFORMATION : TV 75 OHM INPUT ANT. SIFE VOLTAGE 0 dB =1uV

DESCRITION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
VL BAND										
TUNING RANGE	HIGH	MHZ	140.25	145.25						
	LOW	MHZ	48.25	45.25						
COLOR/USABLE SENS.	CH - E2	dB	32/46	26 /40	/	/	/	/	/	/
	CH - S2	dB	32/46	26 /40	/	/	/	/	/	/
	CH - S6	dB	32/46	26 /40	/	/	/	/	/	/
IF REJ.	CH - E2	dB	40	50						
IMAGE REJ.	CH - S6	dB	30	40						
DIAL CALIB.	CH - E2	MHZ	± 7							
	CH - S2	MHZ	± 7							
	CH - S6	MHZ	± 7							
VH BAND										
TUNING RANGE	HIGH	MHZ	463.25	466.0						
	LOW	MHZ	147.25	140.0						
COLOR/USABLE SENS.	CH - S7	dB	32/46	26 /40	/	/	/	/	/	/
	CH - S25	dB	32/46	26 /40	/	/	/	/	/	/
	CH - S41	dB	32/46	26 /40	/	/	/	/	/	/
IF REJ.	CH - S7	dB	50	60						
IMAGE REJ.	CH - S41	dB	40	50						
DIAL CALIB.	CH - S7	MHZ	± 7							
	CH - S25	MHZ	± 7							
	CH - S41	MHZ	± 7							

ELECTRICAL SPECIFICATION

DESCRITION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
UHF BAND										
TUNING RANGE	HIGH	MHZ	855.25	857.0						
	LOW	MHZ	471.25	468.0						
COLOR/USABLE SENS.	CH - 21	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 30	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 40	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 50	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 60	dB	36/52	30 /46	/	/	/	/	/	/
IF REJ.	CH - 40	dB	40	50						
IMAGE REJ.	CH - 40	dB	40	50						
DIAL CALIB.	CH - 21	CH	± 4							
	CH - 30	CH	± 4							
	CH - 40	CH	± 4							
	CH - 50	CH	± 4							
	CH - 60	CH	± 4							
CONTRAST RANGE		dB	6	8						
SOUND										
MAX. OUTPUT		mW	700	1000						
THD. OUTPUT 10 %		mW	500	700						
REF. THD		%	5	3						
S /N		dB	30	35						
AM SUPP.		dB	25	30						
MIN. HUM		mV	30	15						
RESPONSE	FH 6 KHZ	dB	-9± 3	-9						
	FL 125 HZ	dB	-3± 3	-3						
SIF. FREQ. ERROR		KHZ	± 100							
LIMIT SENS.		dB	80	70						

ELECTRICAL SPECIFICATION

SUPPLY VOLTAGE : AC 230V DC 13.5V LOAD : 16 ohm TESTER:
GERERAL INFORMATION : TV 75 OHM INPUT ANT. SIFE VOLTAGE 0 dB =1uV

DESCRITION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
VL BAND										
TUNING RANGE	HIGH	MHZ	140.25	145.25						
	LOW	MHZ	48.25	45.25						
COLOR/USABLE SENS.	CH - E2	dB	32/46	26 /40	/	/	/	/	/	/
	CH - S2	dB	32/46	26 /40	/	/	/	/	/	/
	CH - S6	dB	32/46	26 /40	/	/	/	/	/	/
IF REJ.	CH - E2	dB	40	50						
IMAGE REJ.	CH - S6	dB	30	40						
DIAL CALIB.	CH - E2	MHZ	± 7							
	CH - S2	MHZ	± 7							
	CH - S6	MHZ	± 7							
VH BAND										
TUNING RANGE	HIGH	MHZ	463.25	466.0						
	LOW	MHZ	147.25	140.0						
COLOR/USABLE SENS.	CH - S7	dB	32/46	26 /40	/	/	/	/	/	/
	CH - S25	dB	32/46	26 /40	/	/	/	/	/	/
	CH - S41	dB	32/46	26 /40	/	/	/	/	/	/
IF REJ.	CH - S7	dB	50	60						
IMAGE REJ.	CH - S41	dB	40	50						
DIAL CALIB.	CH - S7	MHZ	± 7							
	CH - S25	MHZ	± 7							
	CH - S41	MHZ	± 7							

ELECTRICAL SPECIFICATION

DESCRITION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
UHF BAND										
TUNING RANGE	HIGH	MHZ	855.25	857.0						
	LOW	MHZ	471.25	468.0						
COLOR/USABLE SENS.	CH - 21	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 30	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 40	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 50	dB	36/52	30 /46	/	/	/	/	/	/
	CH - 60	dB	36/52	30 /46	/	/	/	/	/	/
IF REJ.	CH - 40	dB	40	50						
IMAGE REJ.	CH - 40	dB	40	50						
DIAL CALIB.	CH - 21	CH	± 4							
	CH - 30	CH	± 4							
	CH - 40	CH	± 4							
	CH - 50	CH	± 4							
	CH - 60	CH	± 4							
CONTRAST RANGE		dB	6	8						
SOUND										
MAX. OUTPUT		mW	700	1000						
THD. OUTPUT 10 %		mW	500	700						
REF. THD		%	5	3						
S /N		dB	30	35						
AM SUPP.		dB	25	30						
MIN. HUM		mV	30	15						
RESPONSE	FH 6 KHZ	dB	-9±3	-9						
	FL 125 HZ	dB	-3±3	-3						
SIF. FREQ. ERROR		KHZ	± 100							
LIMIT SENS.		dB	60	70						

ELECTRICAL SPECIFICATION

DESCRITION		UNIT	LIMIT	NOMINAL	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6
PICTURE										
HOR . FREQ .		HZ	±500	0						
LINEARITY	VERT.	%	15	10						
	HOR.	%	15	10						
PINCUSHION	DIST.	%	2	1						
BARREL	DIST.	%	2	1						
KEYSTANE	DIST.	%	2	1						
V／H	RATIO	%	100±5	100						
AUDIO SCAN SENS.	VL/VH/UHF	dB	50							
LUMINANCE	MAX	lux	200	250						
	MIN	lux	50	30						
VA TEST										
H. V.	MAX	KV	16±1	16						
H. V.	MIN	KV	13±1	15						
BEAM CURRENT	MAX	uA	500	800						
BEAM CURRENT	MIN	uA	50	10						
REG. VOLTAGE		V	10.5±0.2	10.5						
DELAY AGC. VOLTAGE		V	6±.5	6						
REG. RIPPLE VOLTAGE		mV	30	15						
DC CONSUMPTION		W	50	45						
AC CONSUMPTION		W	60	50						

ALIGNMENT PROCEDURE

REGULATOR ADJUSTMENT

NOTE: MALADJUSTMENT OF THE LOW VOLTAGE REGULATOR OR THE HORIZONTAL OSCILLATOR MAY RESULT IN DAMAGE TO THE HORIZONTAL OUTPUT TRANSISTOR OR PULSE LIMITER DIODE.
THE FOLLOWING PROCEDURES ARE RECOMMENDED TO INSURE SAFE OPERATION.

1. CONNECT THE TV TO AC 100~240V THEN ADJUST THE AC SWITCHING MODE POWER REGULATOR VRP1 TO DC 12V.
2. CONNECT A DC DIGITAL VOLTMETER OR OTHER PRECISION ACCURACY VOLTMETER TO THE COLLECTOR OF THE REGULATOR OUTPUT TRANSISTOR QP03 (T.P1)

HORIZONTAL OSCILLATOR ADJUSTMENT

1. POWER ADJUSTMENT
   ADJUST THE REGULATOR VRP2 TO DC 10.5V.
2. VERTICAL HIGHTNESS ALIGNMENT
   ADJUST THE VERTICAL HIGHTNESS VRV1 & VRV2, ENABLE THE CIRCLE OF PICTURE APPROACH TO CIRCLE.
3. HORIZONTAL POSITION ALIGNMENT
   ADJUST HORIZONTAL POSITION VRH1, LET THE SQUARE SIGNAL IN THE CENTER OF THE SCREEN.
4. RF AGC ALIGNMENT
   ADJUST VIF PROCESS AGC CONTROL VRI1 AT INPUT SIGNAL INTENSITY 60dB, THE SCREEN COULD LOOKING CLEAR AND 80dB THE SCREEN DON'T INFLECT.
5. WHITE BALANCE ALIGNMENT
   ADJUST THE VRY5, VRY6, AT CENTER POSITION. ADJUST SCREEN VR, LET THE SCREEN WILL BE LITTLE BRIGHTNESS. ADJUST VRY6 LET THE SCREEN TO BE YELLOW, AND THEN ADJUST VRY5 LET THE SCREEN APPROACH TO WHITE.
6. FOCUS ADJUSTMENT
   ADJUST FOCUS VR, LET THE STRIP IN THE SCREEN TO BE CLEAR.
7. SCREEN ADJUSTMENT
   ADJUST SCREEN VR LET THE BRIGHTNESS SUIT AS DESIRED.

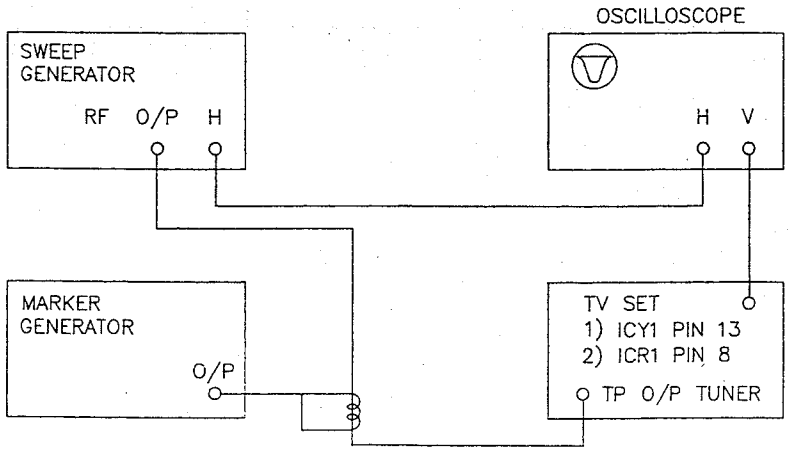
ALIGNMENT PROCEDURE

GENERAL ALIGNMENT INSTRUCTIONS

1. VIDEO IF ALIGNMENT

TEST EQUIPMENT CONNECTION (SEE FIGURE).
OSCILLOSCOPE: CONNECT TO THE (1). ICY1 PIN 13.
(2). ICR1 PIN 8.
SWEEP GENERATOR: CONNECT THROUGH A MATCHING PAD TO THE TEST POINT (T.P) OF THE TUNER.
MARKER GENERATOR: COUPLE LOOSELY TO THE OUTPUT CABLE OF SWEEP GENERATOR.

ADJUST SWEEP GENERATOR TO LOWEST SIGNAL LEVEL CONSISTENT WITH USABLE			
STEP	SWEEP FREQUENCY	MARKER FREQUENCY	REMARK
ADJUST VIF DETECTOR TY01 FOR MARKER POINT MAX.	25~45 MHz (45~65 MHz FOR JAPAN). 30~50 MHz FOR CCIR.	SYSTEM B,G,H, 38.9 MHz SYSTEM I 36.9 MHz SYSTEM M,N 45.75 MHz (58.75 MHz FOR JAPAN) (34.7 MHz FOR AUSTRARIA SYSTEM)	IN THE PARENTHESIS FOR AFC CORRECTION.



VIDEO IF ALIGNMENT CONNECTING FIGURE

ALIGNMENT PROCEDURE

2. SOUND IF ALIGNMENT

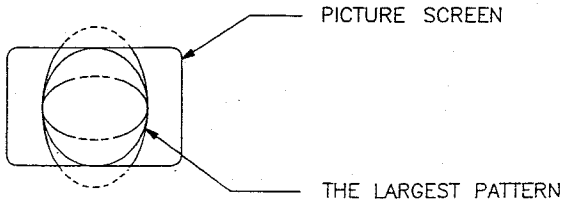
TEST EQUIPMENT CONNECTION
SIGNAL GENERATOR: CONNECT TO TEST POINT (T.P) OF THE TUNER THROUGH A MATCHING PAD.
OSCILLOSCOPE: CONNECT TO THE ICY1 PIN 50.

ALIGNMENT PROCEDURE

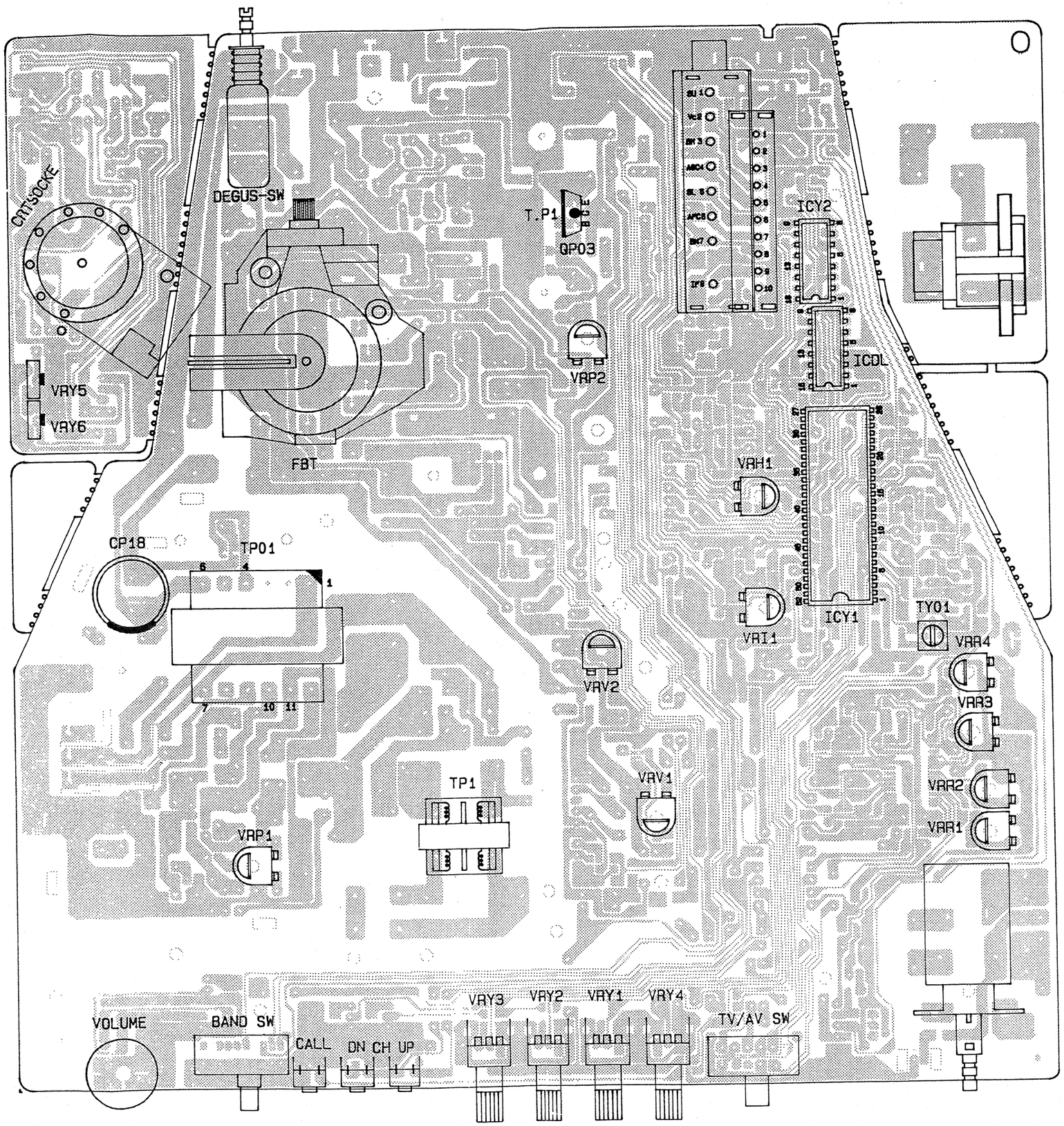
STEP	GENERATOR	SCOPE
DON'T ADJUST (PLEASE CHECK)	SYSTEM B,G,H, 33.4 MHz SYSTEM M,N 41.25 MHz (54.25 MHz FOR JAPAN) SYSTEM I 33.5 MHz. SYSTEM D,K, 32.4 MHz, 1 KHz FM MOD DEVIATION 25 KHz 80 dB OUTPUT.	CONNECT TO THE ICY1 PIN 50

3. VERTICAL DEFLECTION ALIGNMENT

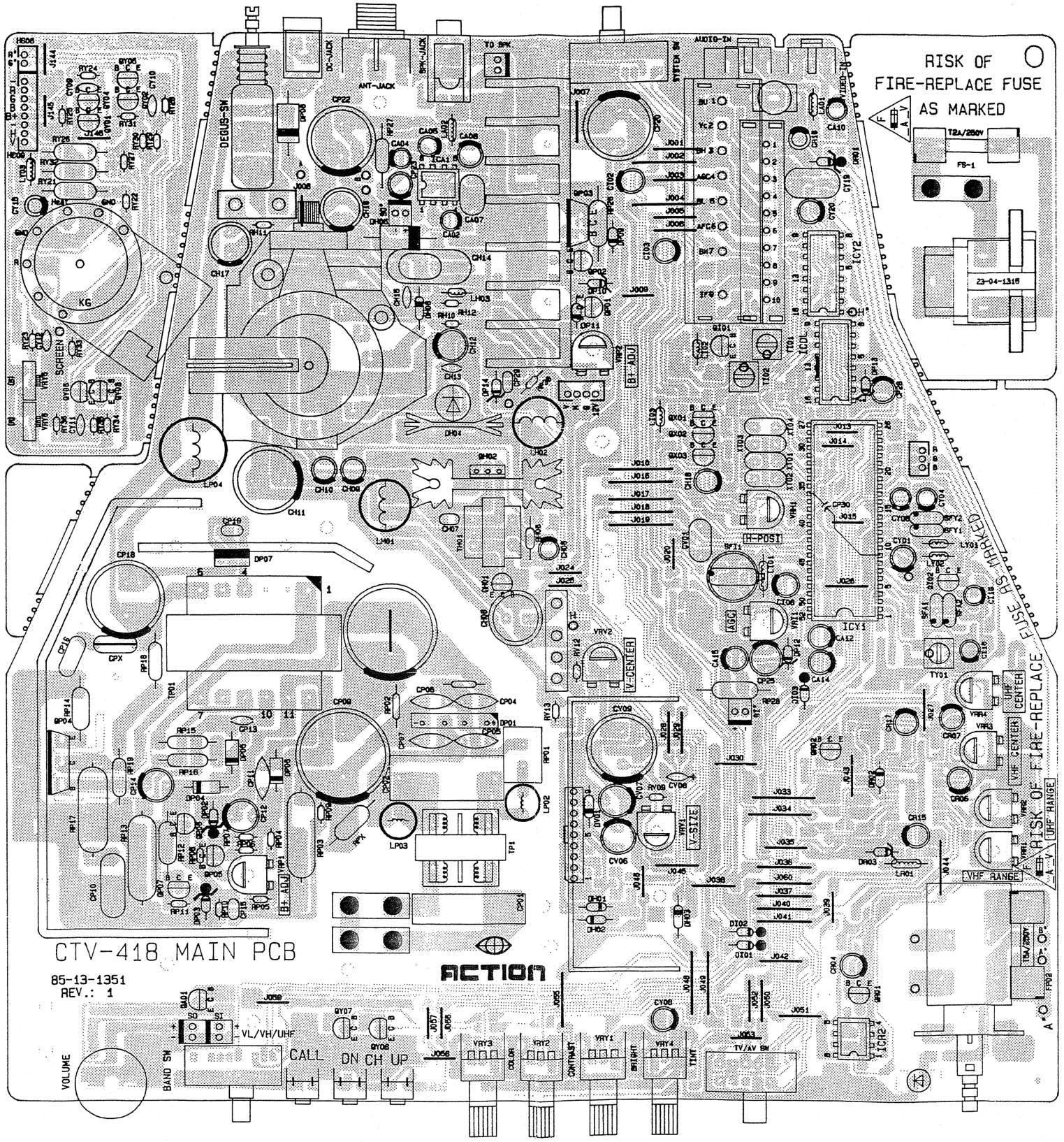
(1) TUNE THE RECEIVER IN A TEST PATTERN.
(2) ADJUST V-SIZE CONTROL VRV1 (300 ohm). WHEN THE INSIDE OF THE LARGEST CIRCLE OF TEST PATTERN REACHES NEAR ROUND PATTERN. (SEE THE FIGURE)
(3) IF THE PATTERN NOT AT CENTER POSITION, ADJUST V-POSITION CONTROL VRV2 (5K OHM).



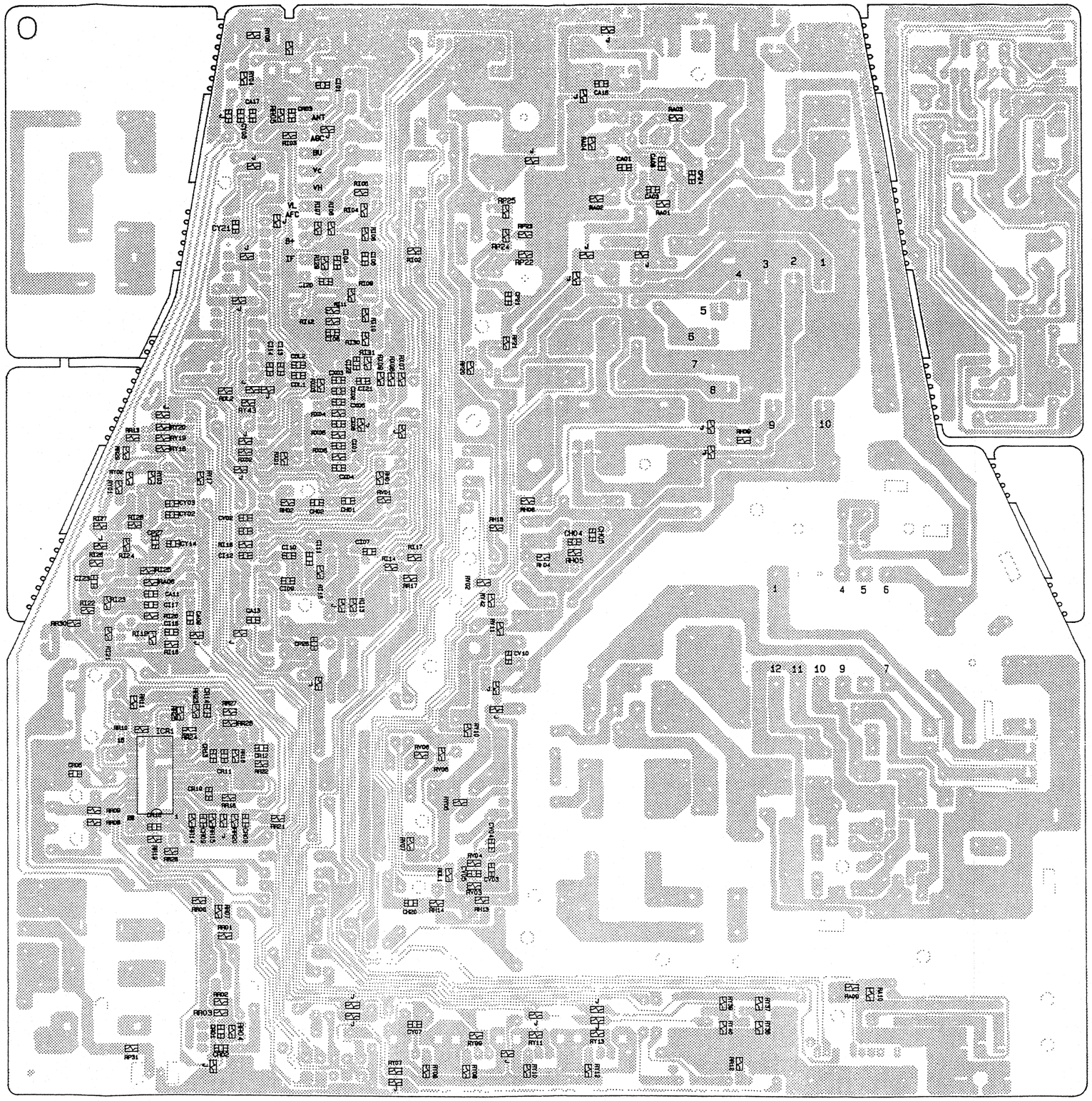
WIRING DIAGRAM



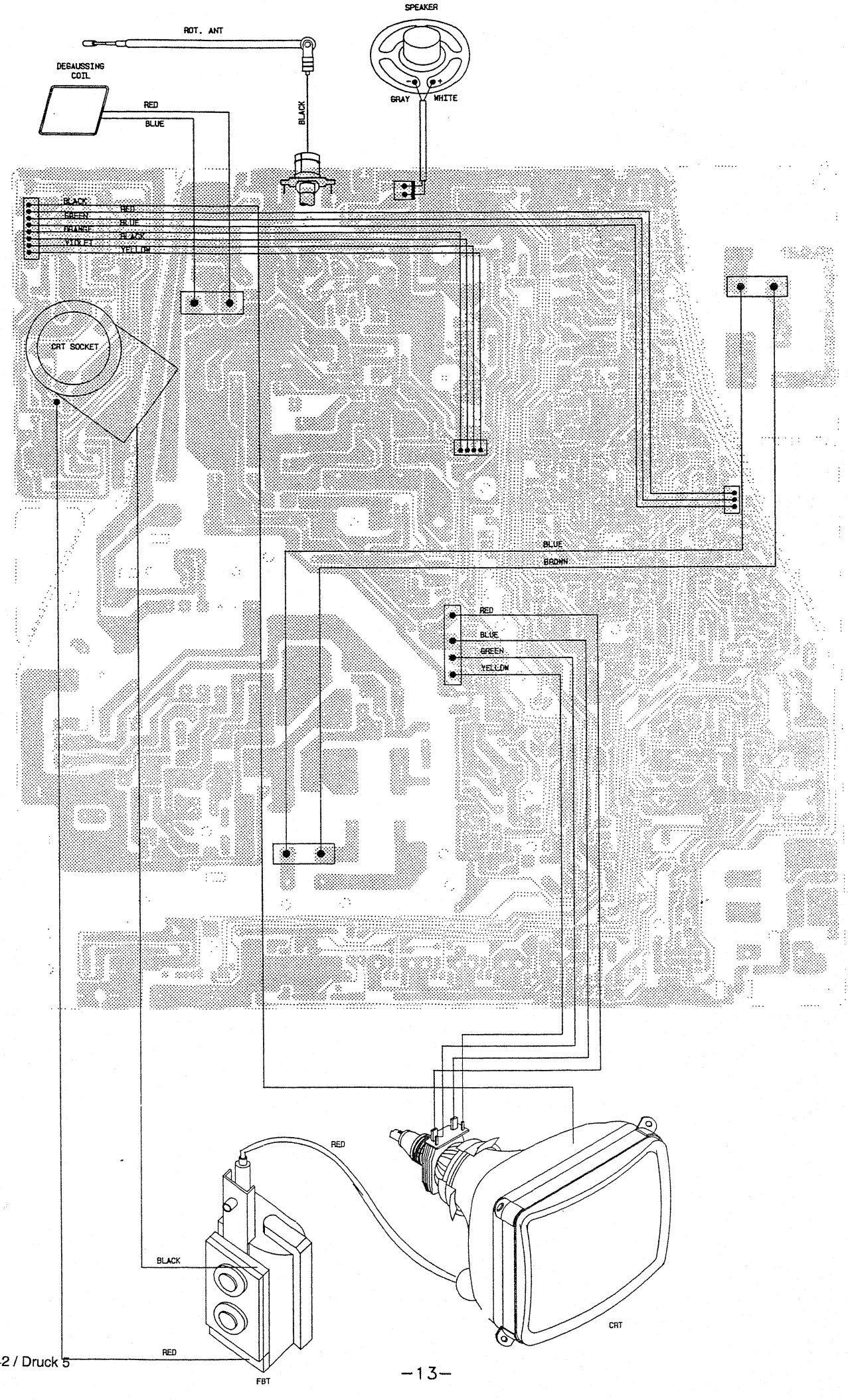
MAIN P.C.B TOP VIEW



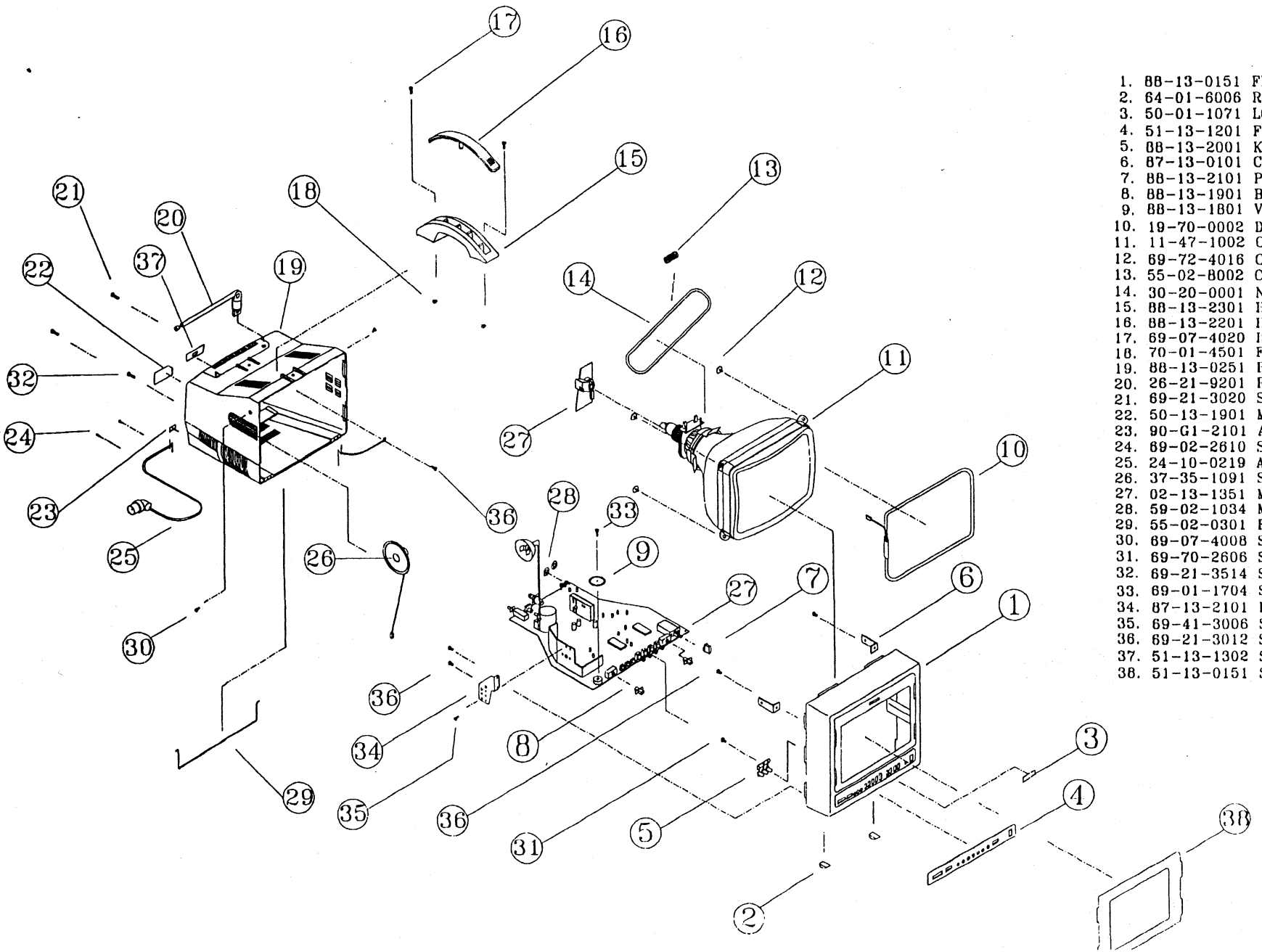
MAIN P.C.B BOTTOM VIEW



WIRING DIAGRAM



EXPLODE VIEW



1. 88-13-0151 FRONT CAB.
2. 64-01-6006 RUBBER FOOT
3. 50-01-1071 LOGO (ACTION)
4. 51-13-1201 FUN.PLATE
5. 88-13-2001 KNOB SET
6. 87-13-0101 CASE BRACKET
7. 88-13-2101 POWER KNOB
8. 88-13-1901 BAND KNOB
9. 88-13-1801 VOL. KNOB
10. 19-70-0002 DEGAUSE COIL
11. 11-47-1002 CRT 10"CTV
12. 69-72-4016 CRT SCREW TPW4*16
13. 55-02-8002 CRT SPRING
14. 30-20-0001 NETTING WIRE
15. 88-13-2301 HANDLE BASE
16. 88-13-2201 HANLE COVER
17. 69-07-4020 ISO M4*20 F+
18. 70-01-4501 FLANGE M4 NUT
19. 88-13-0251 BACK-CAB.
20. 26-21-9201 ROD ANT 7D*6
21. 69-21-3020 SCREW TP 3*20 RD+
22. 50-13-1901 MODEL (ACTION)
23. 90-G1-2101 A/V LABEL
24. 69-02-2610 SCREW ISO 2.6*10 BK
25. 24-10-0219 ANT CONNECTOR
26. 37-35-1091 SPK 3" 16OHM/1W
27. 02-13-1351 MAIN PCB ASS'Y
28. 59-02-1034 MIC JACK SPONGE
29. 55-02-0301 FOOT
30. 69-07-4008 SCREW ISO 4*8 F+ BK
31. 69-70-2606 SCREW TPW2.6*6 RD+
32. 69-21-3514 SCREW TP3.5*14 RD+
33. 69-01-1704 SCREW ISO 1.7*4 RD+
34. 87-13-2101 POWER BKT.
35. 69-41-3006 SCREW MTP 3*6 RD+
36. 69-21-3012 SCREW TP3*12 RD+
37. 51-13-1302 SYSTEM PLATE
38. 51-13-0151 SUNSCREEN

PARTS LIST
FINAL ASSEMBLY

MFR'S PART NO.	DESCRIPTION	Q'TY
MISCELLANEOUS		
02-47-1002	CRT	1
19-70-0004	DEGAUSSING COIL	1
24-20-2021	WIRE HOUSING 2P	1
24-10-0239	ANTENNA CONNECTOR L TYPE	1
26-21-9201	ROD ANTENNA	1
37-35-1091	SPEAKER 3" 16 OHM 1 W	1
38-10-0204	AC CORD	1
55-02-0301	FOOT	1
55-02-8002	CRT SPRING	1
58-13-2351	SHIELD DOWN	1
59-02-1034	MICROPHONE JACK SPONGE	2
64-01-6006	RUBBER FOOT	2
METAL PARTS		
69-01-1704	SCREW ISO 1.7x4, RD+	1
69-06-4008	SCREW ISO 4x8, FL+	2
69-07-4020	SCREW ISO M4x20F	2
69-21-3010	SCREW TAPPING 3x10, RD+	2
69-21-3020	SCREW TAPPING 3x20, RD+	2
69-21-3012	SCREW TAPPING 3x12, RD+	3
69-21-3512	SCREW TAPPING 3.5x12, RD+	1
69-42-2608	SCREW MTP 2.6x10	2
69-70-2606	SCREW TPW 2.6x6, RD+	1
69-72-4016	SCREW TPW 4x16, RD+	4
70-01-4501	NUT M4 FLANGE	2
87-13-0101	CASE BRACKET	2
87-13-2201	SHIELD TOP	1
87-22-2301	SCART JACK HOLDER	1
PLASTIC PARTS		
88-13-0152	FRONT CABINET WH/RD	1
88-13-0153	FRONT CABINET GY/GN	1
88-13-0252	BACK CABINET WH/RD	1
88-13-0251	BACK CABINET DGY/BK	1
88-13-1801	VOLUME KNOB	1
88-13-1901	BAND KNOB	1
88-13-2001	FUNCTION KNOB	1
88-13-2101	POWER KNOB	1
88-13-2201	HAND COVER	1
88-13-2301	HAND BASE WH	1
88-13-2302	HAND BASE GY	1
88-87-1401	DEGAUSS SW KNOB BK	1
APPEARANCES		
50-13-1903	MODEL PLATE	1
51-13-0152	SUNSCREEN PLATE	1
51-13-1205	FUNCTIPN PLATE	1
91-13-1901	INSTRUCTION BOOK	1
94-13-7903	CARTON	1
96-13-7001	POLYLON	2

PARTS LIST
MAIN PCB ASSEMBLY

MFR'S PART NO.	DESCRIPTION	SYMBOL NO.	Q'TY
PCB			
85-13-1351	MAIN PCB		1
SEMICONDUCTORS			
10-04-1001	IC TBA820M 8PIN	ICA1	1
10-09-1012	IC BA10358 8PIN	ICR2	1
10-20-0114	IC AN5707NS 28PIN	ICR1	1
10-20-0118	IC TDA8395 16PIN	ICY2	1
10-20-0119	IC TDA4661 16PIN	ICDL	1
10-20-0607	IC TDA3653B 9PIN	ICV1	1
10-20-0705	IC TDA8362 52 PIN	ICY1	1
12-01-1002	TRANSISTOR HIT5417F NPN	QI01	1
12-02-1003	TRANSISTOR 2SC945K NPN	QA01,QI02,QP01,QP05 QP07, QR01,02, QY07,08	9
12-03-1047	TRANSISTOR C2310/2229 NPN	QY01,02,03,04,05,06	6
12-03-2031	TRANSISTOR HE8550SD PNP	QP02,06	2
12-03-2033	TRANSISTOR 2SA1012 PNP	QP03	1
12-04-1002	TRANSISTOR D788CD/2SC2500 NPN	QH01	1
12-04-1013	TRANSISTOR BU407 NPN	QH02	1
12-04-1025	TRANSISTOR 2SD1545 NPN	QH04	1
12-05-5006	TRANSISTOR X'TAL 4.43MHz	XT02	1
13-03-1015	DIODE SW SI0SC4M	DP07	1
13-05-1000	DIODE IN4001 1A/50V	DV01	1
13-05-1008	DIODE PR1005 1A	DH06,DP04,05,06	4
13-05-1011	DIODE PR3005 3A 600V	DH05	1
13-05-1025	DIODE PR6005 6A 600V	DH04	1
13-05-1026	DIODE IN5822 3A 40V	DP08	1
13-05-1036	DIODE RS205 BRIDGE 2A 600V	DP01	1
13-06-1209	DIODE ZENER 2V	DR01	1
13-06-1330	DIODE ZENER 33V	DP14	1
13-06-1519	DIODE ZENER 5.1V	DP10,13,DR03	3
13-06-1829	DIODE ZENER 8.2V	DP02,12	2
13-06-1909	DIODE ZENER 9V	DP03	1
13-23-1000	DIODE IN4148	DH01,02,03,DI01,02,03, DP09,11,DR02	9
CAPACITORS			
17-05-2479	ELECTROLYTIC 4.7uF 50V ± 10%	CH08	1
17-11-4103	CERAMIC .01uF 1KV +80%-20%	CP04,05,06,07,11	5
17-16-4152	CERAMIC .0015uF 500V +80%-20%	CH13,15,CY12	3
17-21-3229	ELECTROLYTIC 2.2uF 10V ± 20%	CA15	1
17-22-0682	ELECTROLYTIC 6800uF 16V ± 20%	CP18	1
17-22-3100	ELECTROLYTIC 10uF 16V ± 20%	CP30	1
17-22-3222	ELECTROLYTIC 2200uF 16V ± 20%	CP20	1
17-22-3471	ELECTROLYTIC 470uF 16V ± 20%	CH12	1
17-23-3101	ELECTROLYTIC 100uF 25V ± 20%	CP14	1
17-23-3222	ELECTROLYTIC 2200uF 25V ± 20%	CP22	1

MFR'S PART NO.	DESCRIPTION	SYMBOL NO.	Q'TY
CAPACITORS			
17-24-3101	ELECTROLYTIC 100uF 35V ± 20%	CP12,CV06	2
17-24-3102	ELECTROLYTIC 1000uF 35V ± 20%	CV09	1
17-24-3221	ELECTROLYTIC 220uF 35V ± 20%	CV07	1
17-24-3222	ELECTROLYTIC 2200uF 35V ± 20%	CH11	1
17-26-3220	ELECTROLYTIC 22uF 160V ± 20%	CH16,17	2
17-26-3229	ELECTROLYTIC 2.2uF 160V ± 20%	CH09,10	2
17-28-0101	ELECTROLYTIC 100uF 400V ± 20%	CP09	1
17-35-2104	POLYESTER .1uF 50V ± 10%	CA07,CV01	2
17-35-2224	POLYESTER .22uF 50V ± 10%	CY19	1
17-52-2479	TANTALUM 4.7uF 16V ± 10%	CV08	1
17-68-2823	DPPN .082uF 400V ± 10%	CH14	1
17-6A-2222	DMPP 2200pF 1 KV ± 10%	CP10	1
17-89-0224B	DMPP .22uF 250V ± 10%	CP02	1
17-89-2332	DMPP 3300pF 400V ± 10%	CP16,CPX	2
17-89-2474B	DMPP .47uF 250V ± 10%	CP01	1
27-15-2391	CERAMIC 390pF 50V ± 10%	CY09,CY10	2
27-15-2561	CERAMIC 560pF 50V ± 10%	CY11	1
27-15-4104	CERAMIC .1uF 50V +80%-20%	CP13	1
27-21-3100	ELECTROLYTIC 10uF 10V ± 20%	CA14,CI16,CI18,CR06 CY04	5
27-21-3101	ELECTROLYTIC 100uF 10V ± 20%	CR15	1
27-21-3109	ELECTROLYTIC 1uF 10V ± 20%	CR04	1
27-21-3229	ELECTROLYTIC 2.2uF 10V ± 20%	CA10,12,CI08	3
27-21-3470	ELECTROLYTIC 47uF 10V ± 20%	CA04,CP28,CR17,CY20	4
27-21-3479	ELECTROLYTIC 4.7uF 10V ± 20%	CR07	1
27-22-3100	ELECTROLYTIC 10uF 16V ± 20%	CY15	1
27-22-3109	ELECTROLYTIC 1uF 16V ± 20%	CH18,CY06	2
27-22-3220	ELECTROLYTIC 22uF 16V ± 20%	CA02	1
27-22-3221	ELECTROLYTIC 220uF 16V ± 20%	CA08,CP23,25,CY01	4
27-22-3229	ELECTROLYTIC 2.2uF 16V ± 20%	CH06,CI02	2
27-22-3470	ELECTROLYTIC 47uF 16V ± 20%	CA05,CI03	2
27-25-3109	ELECTROLYTIC 1uF 50V ± 20%	CR18	1
27-35-2152	POLYESTER .0015uF 50V ± 10%	CH07	1
27-35-2223	POLYESTER .022uF 50V ± 10%	CP29	1
27-35-2333	POLYESTER .033uF 50V ± 10%	CP15	1
27-35-2472	POLYESTER .0047uF 50V ± 10%	CP19	1
28-13-1050	CERAMIC CHIP 5pF 25V ± 5%	CI22	1
28-13-1060	CERAMIC CHIP 6pF 25V ± 5%	CI21	1
28-13-1120	CERAMIC CHIP 12pF 25V ± 5%	CI15	1
28-13-1150	CERAMIC CHIP 15pF 25V ± 5%	CI20	1
28-13-1180	CERAMIC CHIP 18pF 25V ± 5%	CX04	1
28-13-1680	CERAMIC CHIP 68pF 25V ± 5%	CI23	1
28-13-2101	CERAMIC CHIP 100pF 25V ± 10%	CA06,CP21	2
28-13-2391	CERAMIC CHIP 390pF 25V ± 10%	CA03,CR10	2
28-13-2681	CERAMIC CHIP 680pF 25V ± 10%	CR05	1
28-13-4102	CERAMIC CHIP .001uF 25V	CA16,17,CDL1,2,CI17, CV05,CR01	7

MFR'S PART NO.	DESCRIPTION	SYMBOL NO.	Q'TY
CAPACITORS			
28-13-4103	CERAMIC CHIP .01uF 25V	CI01,04,05,07,11,CR08 CR11,13,CV04,10, CH20	11
28-13-4104	CERAMIC CHIP .1uF 25V	CI12,13,14,CP26,CR02, CR12,CX02,CY02,CH05, CI09,CY14,21,CA01	13
28-13-4203	CERAMIC CHIP .02uF 25V	CP24,27,CR03,09,16	5
28-13-4222	CERAMIC CHIP .0022uF 25V	CH02,04,CI06,CV02	4
28-13-4223	CERAMIC CHIP .022uF 25V	CA13,CDL3,4,CI10	4
28-13-4332	CERAMIC CHIP 3300pF 25V	CA09	1
28-13-4333	CERAMIC CHIP .033uF 25V	CR14	1
28-13-4472	CERAMIC CHIP .0047uF 25V	CH01,CV03,CX03,CY03	4
28-13-4473	CERAMIC CHIP .047uF 25V	CA11,CY05	2
COILS & IFTS			
18-03-3001	FILTER SIF 5.5MHz	SFA1	1
18-03-3002	FILTER SIF TRAP 5.5MHz	SFY1	1
18-03-5008	SAW FILTER 38.9MHz	SFI1	1
18-03-7065	IFT VIF AFC 38.9MHz	TY01	1
18-03-7075	IFT 0.9uH 12P 48.43MHz	TI01	1
18-03-7076	IFT 0.46uH 22P 50MHz	TI02	1
18-07-3001	FILTER SIF TRAP 6.5MHz	SFY2	1
18-07-3002	FILTER SIF 6.5MHz	SFA2	1
19-40-2180	CHOKE 18uH	LA01	1
19-40-2229	CHOKE 2.2uH	LI01	1
19-40-2339	CHOKE 3.3uH	LA02	1
19-40-2479	CHOKE 4.7uH	LY01	1
19-40-2828	CHOKE .82uH	LH03,LI02,03	3
19-40-3101	CHOKE 100uH	LR01,LY02,03	3
19-40-3151	CHOKE 150uH 2A	LH02	1
19-43-1130	LINEAR 11.5uH 1.5A	LH01	1
19-43-2900	CHOKE 90uH 1A	LP02,03	2
19-46-1103	LINE FILTER	TP1	1
19-46-4750	CHOKE 75uH 4A	LP04	1
JACKS			
23-01-0004	FUSE HOLDER		4
23-03-3502	MICROPHONE JACK	EAR JACK	1
23-04-1315	SOCKET AC	AC I/P	1
23-05-5001	JACK DC 4.5D 5A	DC I/P	1
23-06-0004	JACK RCA AUDIO (WHITE)	AUDIO I/P	1
23-06-0010	JACK RCA VIDEO (YELLOW)	VIDEO I/P	1
23-08-0905	SOCKET CRT JACK		1

PARTS LIST
MAIN PCB ASSEMBLY

MFR'S PART NO.	DESCRIPTION	SYMBOL NO.	Q'TY
VARIABLE RESISTORS			
21-12-103B	VR 10KB	VRY1,2,3,	3
21-12-103C	VR 10KD, VOLUME CONTROL	VRA1	1
21-72-1020	SVR 1 kB	VRP1	1
21-72-1039	SVR 10kB METAL	VRH1,VRI1	2
21-72-2023	SVR 2 kB METAL	VRP2	1
21-72-3013	SVR 300B METAL	VRV1	1
21-72-5023	SVR 5 kB 80V	VRY5,6	2
21-72-5024	SVR 5 kB	VRV2	1
21-72-5031	SVR 50kB	VRR1,2,3,4	4
RESISTORS			
16-01-1101	100 OHM 1/2W	RP26	1
16-01-1184	180 KOHM 1/2W	RP15,16	2
16-01-1223	22 KOHM 1/2W	RY21,26,32	3
16-01-1330	33 OHM 1/2W	RP27	1
16-01-1565	5.6 MOHM 1/2W	RP18,19	2
16-06-1470	47 OHM 1 W	RH06	1
16-07-1103	10 KOHM 2 W	RP30	1
16-12-1103	10 KOHM 1/4W	RH11	1
16-12-1229	2.2 OHM 1/4W	RH10,12,RV09	3
16-12-1271	270 OHM 1/4W	RV12	1
16-12-1479	4.7 OHM 1/4W	RV13	1
16-40-1390	39 OHM 6 W	RP17	1
16-41-1154	150K OHM 1/2W	RP02	1
16-46-1120	12 OHM 1 W	RP12	1
16-46-1338	.33 OHM 1 W	RP14	1
16-47-1180	18 OHM 2 W	RP28	1
16-47-1229	2.2 OHM 2 W	RP03	1
16-47-1270	27 OHM 2 W	RP13	1
16-50-1409	4 OHM 5 W	RP01	1
16-23-1103	10 KOHM 1/8W	RP08	1
16-23-1104	100 KOHM 1/8W	RA12(CA15)	1
16-23-1122	1.2 KOHM 1/8W	RP06	1
16-23-1151	150 OHM 1/8W	RY25,29	2
16-23-1222	2.2 KOHM 1/8W	RY22,23,27,33,34	5
16-23-1271	270 OHM 1/8W	RY36	1
16-23-1272	2.7 KOHM 1/8W	RP05	1
16-23-1331	330 OHM 1/8W	RP09	1
16-23-1472	4.7 KOHM 1/8W	RP11	1
16-23-1562	5.6 KOHM 1/8W	RY30	1
16-23-1682	6.8 KOHM 1/8W	RP04,10	2
16-23-1821	820 OHM 1/8W	RY24,28,35	3
16-23-1822	8.2 KOHM 1/8W	RP07	1
16-63-1000	0 OHM 1/4W CHIP	RR13,RI05,ALL(J),RI09	37
16-63-1101	100 OHM 1/4W CHIP	RI08,RV11	2
16-23-1153	15 KOHM 1/8W	RY31	1

PARTS LIST
MAIN PCB ASSEMBLY

MFR'S PART NO.	DESCRIPTION	SYMBOL NO.	Q'TY
RESISTORS			
16-63-1102	1 KOHM 1/4W CHIP	RA01,RH04,05,RI20,23, RI25,RP20,21,22,31, RY13,17	12
16-63-1103	10 KOHM 1/4W CHIP	RH09,RI02,RP24,RR01,03 RR06,11,29,RV04,RY08, RY11	11
16-63-1104	100 KOHM 1/4W CHIP	RA09,RI07,RR0,19,25, RX03,RY37,39,RV06	9
16-63-1109	1 OHM 1/4W CHIP	RA04	1
16-63-1121	120 OHM 1/4W CHIP	RI27	1
16-63-1122	1.2 KOHM 1/4W CHIP	RI14,26	2
16-63-1123	12 KOHM 1/4W CHIP	RH01	1
16-63-1153	15 KOHM 1/4W CHIP	RY12	1
16-63-1154	150 KOHM 1/4W CHIP	RR18	1
16-63-1182	1.8 KOHM 1/4W CHIP	RY07	1
16-63-1221	220 OHM 1/4W CHIP	RDL2	1
16-63-1222	2.2 KOHM 1/4W CHIP	RA06,RI10,15,28	4
16-63-1223	22 KOHM 1/4W CHIP	RH08,RI17,RR02,RV07	4
16-63-1224	220 KOHM 1/4W CHIP	RR10,RA02	2
16-63-1271	270 OHM 1/4W CHIP	RR22	1
16-63-1273	27 KOHM 1/4W CHIP	RDL1,RR21	2
16-63-1330	33 OHM 1/4W CHIP	RP23,25	2
16-63-1331	330 OHM 1/4W CHIP	RR26,RY04,18,19,20	5
16-63-1332	3.3 KOHM 1/4W CHIP	RR07,RH14	2
16-63-1333	33 KOHM 1/4W CHIP	RA10,RI03,RR17,28,RY38 RY40	6
16-63-1334	330 KOHM 1/4W CHIP	RV02	1
16-63-1335	3.3 MOHM 1/4W CHIP	RV01	1
16-63-1391	390 OHM 1/4W CHIP	RI18,RR12	2
16-63-1392	3.9 KOHM 1/4W CHIP	RV03	1
16-63-1470	47 OHM 1/4W CHIP	RI24	1
16-63-1471	470 OHM 1/4W CHIP	RV05,08	2
16-63-1472	4.7 KOHM 1/4W CHIP	RH15,RI21,RR14,30,RY02 RY43	6
16-63-1473	47 KOHM 1/4W CHIP	RR13,RI06,RR23,24,RX02	5
16-63-1561	560 OHM 1/4W CHIP	RI11	1
16-63-1562	5.6 KOHM 1/4W CHIP	RI13,RY01,03,09	4
16-63-1563	56 KOHM 1/4W CHIP	RI16,RR15,16,20,RY10	5
16-63-1680	68 OHM 1/4W CHIP	RA03,RI31	2
16-63-1682	6.8 KOHM 1/4W CHIP	RI19,RI22,RV10	3
16-63-1683	68 KOHM 1/4W CHIP	RR04,27	2
16-63-1684	680 KOHM 1/4W CHIP	RY42	1
16-63-1750	75 OHM 1/4W CHIP	RI29,RY05	2
16-63-1820	82 OHM 1/4W CHIP	RI12	1
16-63-1823	82 KOHM 1/4W CHIP	RR05,08	2
16-63-1824	820 KOHM 1/4W CHIP	RH02	1
16-63-1829	8.2 OHM 1/4W CHIP	RI30	1

MAIN PCB ASSEMBLY

MFR'S PART NO.	DESCRIPTION	SYMBOL NO.	Q'TY
SWITCHES			
22-12-0401	4P2T, SLIDE	TV/AV	1
22-13-0425	4P3T, SLIDE	BAND	1
22-42-0209	2P2T, PUSH	DEGAUSSING SW	1
22-72-0203	POWER	POWER	1
22-81-0103	TACT	CH-UP/DN, BAR-DISPLAY	3
MISCELLANEOUS			
15-03-0206	TUNER CCIR RCA		1
24-10-0262	WITH RF PLUG CABLE		1
24-13-0251	WIRE CABLE 2P		1
24-13-0252	WIRE CABLE 2P		1
24-13-0253	WIRE CABLE 2P		1
24-13-0851	WIRE HOUSING 8P		1
24-21-2001	WIRE WAFER 2P		1
24-41-2001	WIRE WAFER 2P		3
24-41-4001	WIRE WAFER 4P		1
25-03-2021	FUSE T2A 250V		1
25-03-5023	FUSE T5A 250V		1
29-32-3001	LED 3D RED		1
39-16-0001	TRANSFORMER, H-DRIVE		1
39-40-0067	SWITCHING TRANSFORMER		1
43-74-1003	FLY BACK TRANSFORMER		1
58-13-2351	SHIELD DOWN		1
69-01-3010	SCREW ISO 3x10, RD+		2
69-01-3012	SCREW ISO 3x12, RD+		1
69-21-2608	SCREW TAPPING 2.6x8, RD+		2
69-21-3006	SCREW TAPPING 3x6, RD+		2
69-41-3008	SCREW MTP 3x8, RD+		2
70-01-3056	NUT M3x56		3
87-13-2001	POWER SINK		1
87-13-2201	SHIELD TOP		1
87-13-2301	SHIELD DOWN		1
87-13-2401	HEAT SINK		1
87-22-1301	ANTENNA JACK HOLDER		1
87-78-0334	HEAT SINK		1
87-87-0301	VERTICAL HEAT SINK		1
87-87-1048	HEAT SINK		1
87-G1-0301	HEAT SINK		1
88-01-0804	LED HOLD		1
88-B3-0701	LED HOLDER		1

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